

WHAT IS CLAIMED IS:

1. An automatic distributed processing system comprising:

a server machine including:

5 an instruction relay library comprising:

a thread management table for storing thread identifiers in correspondence with threads;

10 a server instruction relay thread for, when an instruction is generated during processing of an application, appending a thread identifier managed by said thread management table to the instruction, and sending the instruction to a client machine in collaboration with a higher-level library of said server machine; and

15 a server instruction distribution thread for distributing a thread which processes another instruction from the client machine; and

a client machine connected to said server machine via a network, said client machine including:

20 an instruction execution module comprising:

25 a client instruction distribution thread for receiving the instruction sent from said instruction relay thread of said server machine together with the thread identifier, creating a thread that processes the instruction, and passing the received instruction to the created thread together with the thread identifier; and

an instruction processing thread for processing the received instruction in collaboration with a higher-level library of said client machine, and for, when another instruction is generated upon processing the received instruction or the processing of the received instruction is complete, sending the other instruction or a processing end reply appended with the thread identifier to said instruction distribution thread of said server machine.

2. A computer program product that records a program for operating a server machine that entrusts a process of an instruction to a client machine in an automatic distributed processing system,

said program comprising:

computer readable program code means for making the server machine implement an instruction relay function of appending a thread identifier to an instruction generated during processing of an application of the server machine by looking up a table that manages a relationship between thread identifiers and threads, and sending the instruction to the client machine;

computer readable program code means for making the server machine implement an instruction distribution function of distributing another instruction which is generated upon an instruction process of the client machine and is appended with the

thread identifier to a thread as an entrust source; and

computer readable program code means for making
the server machine implement a function of returning
a processing result of the other instruction which is
5 distributed to and processed by the thread of the
server machine to the client machine.

3. A computer program product that records
a program for operating a client machine to which a
server machine entrusts an instruction in an automatic
10 distributed processing system,

said program comprising:

computer readable program code means for making
the client machine implement a thread creation function
of creating a thread that processes an instruction
15 received from the server machine together with a thread
identifier, on the basis of the thread identifier; and

computer readable program code means for making
the client machine implement a function of sending
another instruction which is generated while the thread
20 created by the thread creation function processes the
instruction to the server machine while appending the
received thread identifier to the other instruction.

4. An automatic distributed processing system in
which a server machine and client machine are connected
25 via a network,

wherein each of the server and client machines
comprises an instruction relay thread for, when

an instruction is generated upon processing of a self application after an exclusive lock, acquiring a lock and relaying the instruction to a partner machine, and an instruction processing thread for receiving and
5 processing the instruction from said instruction relay thread,

at least said instruction processing thread of the client machine comprises means for receiving the instruction from the server machine, checking if a self
10 machine can acquire a lock, and sending a retry request to the server machine if the lock cannot be acquired, and means for acquiring the lock if the lock can be acquired, and sending a reply upon completion of processing of the instruction, and releasing the lock,
15 and

at least said instruction relay thread of the server machine comprises means for making a retry that temporarily releases the lock, then reacquires the lock, and relays the instruction again upon receiving
20 the retry request from the client machine, and means for releasing the lock upon receiving the reply indicating end of the instruction from the server machine.

5. A computer program product that records
25 a program for operating a server machine that entrusts a an instruction in an automatic distributed processing system,

said program comprising:

computer readable program code means for making
the server machine implement an instruction relay
function of relaying an instruction, which is generated
5 during processing of a self application after an
exclusive lock, to an instruction processing thread of
the server machine, and setting itself in a reception
wait state;

computer readable program code means for making
10 the server machine implement an instruction relay retry
function of making a retry that temporarily releases
the lock, then reacquires the lock, and relays the
instruction again upon receiving a retry request from
an instruction processing thread of the client machine
15 during processing of the instruction; and

computer readable program code means for making
the server machine implement an instruction processing
end function of releasing the lock and ending the
instruction upon receiving an instruction end reply
20 from the instruction processing thread of the client
machine.

6. A computer program product that records
a program for operating a client machine to which
a server machine entrusts an instruction in an
25 automatic distributed processing system,

said program comprising:

computer readable program code means for making

the client machine implement a lock acquisition checking function of checking if a self machine can acquire a lock, after an instruction is received from the server machine;

5 computer readable program code means for making the client machine implement a retry request function of sending a retry request to the server machine when the checking function determines that the lock cannot be acquired; and

10 computer readable program code means for making the client machine implement an instruction processing function of acquiring an exclusive lock and processing the received function when the checking function determines that the lock can be acquired, sending
15 a reply to the server machine upon completion of the processing of the instruction, and releasing the lock.

7. An automatic distributed processing system in which a server machine and a client machine having an event processing function are connected via a network,

20 wherein the server machine comprises: an instruction relay thread which has means for, when a first instruction is generated during processing of an application after an exclusive lock, releasing the lock in correspondence with contents of the
25 instruction, and sending the first instruction to an instruction processing thread of the client machine, and means for ending the first instruction upon

receiving an end reply of the instruction process in the instruction processing thread; and an instruction processing thread for processing a second instruction sent from an event processing thread of the client machine, and

5 said client machine comprises: an instruction processing thread of the client machine for, when the first instruction is received from said instruction relay thread, acquiring an exclusive lock, processing
10 the first instruction, releasing the lock, waiting until a restart request is received from the event processing thread, releasing the lock upon completion of the instruction process after the restart,
15 entrusting the end of the instruction process to said instruction relay thread, and sending a restart request to the client machine which is in the wait state; and
20 an event processing thread of the client machine for, when a second instruction is generated during a self event process after an exclusive lock, entrusting the second instruction to said instruction processing thread of the server machine.

8. A computer program product that records a program for operating a server machine that entrusts a
25 an instruction in an automatic distributed processing system,

 said program comprising:

 computer readable program code means for, when

a first instruction is generated during processing of an application after an exclusive lock, making the server machine release the lock in correspondence with contents of the instruction, and send the first
5 instruction to an instruction processing thread of the client machine;

computer readable program code means for making the server machine end the first instruction upon receiving an end reply of the instruction process in
10 the instruction processing thread; and

computer readable program code means for making the server machine process a second instruction sent from an event processing thread of the client machine.

9. A computer program product that records a
15 program for operating a client machine to which a server machine entrusts an instruction in an automatic distributed processing system in which the server and client machines are connected via a network,

said program comprising:

20 computer readable program code means for, when a first instruction is received from the server machine, making the client machine acquire an exclusive lock and process the first instruction, release the lock, wait until a restart request is received from the event
25 processing thread, release the lock upon completion of the instruction process after the restart, entrust the end of the instruction to the server machine, and send

a restart request to the client machine which is in the wait state; and

- 5 computer readable program code means for, when a second instruction is generated during a self event process after an exclusive lock, making the client machine entrust the second instruction to the server machine.